IN THE U.S. PATENT AND TRADEMARK OFFICE

APPELLANTS: Feihong CHEN, et al. CONF. NO.: 4241

APPL. NO.: 10/613,104 ART UNIT: 2616

FILED: July 7, 2003 EXAMINER: Wanda Z. RUSSELL

ENTITLED: METHODS AND DEVICES FOR CREATING BI DIRECTIONAL LSPs

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APPELLANTS' BRIEF ON APPEAL

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APPELLANTS' BRIEF ON APPEAL

I. REAL PARTY IN INTEREST:

The real party in interest in this appeal is Lucent Technologies Inc. Assignment of the application was submitted to the U.S. Patent and Trademark Office and recorded at Reel 014251, Frame 0499.

II. RELATED APPEALS AND INTERFERENCES:

There are no known appeals or interferences that will affect, be directly affected by, or have a bearing on the Board's decision in this Appeal.

III. STATUS OF CLAIMS:

Claims 1-7, 9-18, 20-26, 29, 31-48, 51 and 53-56 are pending in the application, with claims 1, 17, 23, 39, 45 and 55 being written in independent form. Claims 8, 19, 27, 28, 30, 49, 50 and 52 have been canceled.

Claims 1-7, 9-18, 20-26, 29, 31-48, 51 and 53-56 stand rejected under 35 U.S.C. 103(a) as being unpatentable over So, U.S. Pub. Pat. Appl. No. 2002/0109879 A1 ("So") in view of Enoki et al.'s U.S. Pub. Pat. Appl. No. 2002/0057691 A1 ("Enoki"). Claims 1-7, 9-18, 20-26, 29, 31-48, 51 and 53-56 are being appealed.

IV. STATUS OF AMENDMENTS:

A Request for Reconsideration ("Request") was filed on September 11, 2008. In an Advisory Action dated October 1, 2008, the Examiner stated that the Request was considered but did not place the application in condition for allowance.

V. SUMMARY OF CLAIMED SUBJECT MATTER:

(i). Overview of the Subject Matter of the Independent Claims

The present invention is directed at the generation of bi-directional Label Switched Paths (LSPs) for use in networks that utilize the General Multi-Protocol Label Switched (GMPLS) standard. More specifically, independent claim 1 reads as follows (specification citations are in parenthesis):

1.) A network device operable to:

by itself generate and send a backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) (paragraphs [0011] through [0015]) **between the device and the source; and**

receive a backward path reservation message from the source in order to establish a backward LSP between the device and the source, wherein the separately established forward and backward LSPs form a bi-directional LSP between the device and the source (paragraphs [0019] through [0021])**.**

Dependent claim 2 reads as follows:

2.) The device as in claim 1 further operable to generate and send an initial, forward path reservation message to the source in order to establish the forward LSP after receiving the initial forward path request message [paragraph 0011]**.**

Dependent claim 5 reads as follows:

5.) The device as in claim 1 wherein the forward and backward LSPs between the device and source comprise the same path (paragraph [0021]) **.**

Dependent claim 6 reads as follows:

6.) The device as in claim 4 wherein the forward and backward LSPs between the device and destination comprise the same path (paragraph [0021])**.**

Dependent claim 12 reads as follows:

12.) The device as in claim 7 wherein the traffic parameters comprise a bi-directional LSP indicator and a QoS indicator (paragraph [0013]).

Independent claim 17 reads as follows:

17.) A network device operable to generate independently and send a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination (paragraphs [0019] through [0021]).

Dependent claim 18 reads as follows:

18. The device as in claim 17 further operable to separately generate and send a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately established forward and backward LSPs between the device and the destination form a bi-directional LSP between the device and the destination (paragraphs [0011] and [0012]).

Dependent claim 20 reads as follows:

20. The device as in claim 17 further operable to generate and send a first delete path message to the destination and to receive a second delete path message from the destination in order to delete the bi-directional LSP (paragraphs [0017] and [0018]).

Dependent claim 21 reads as follows:

21. The device as in claim 20 further operable to send the first delete path message to the destination before receiving the second delete path message from the destination (paragraph [0018]).

Dependent claim 22 reads as follows:

22. The device as in claim 20 further operable to send the first delete path message to the destination after receiving the second delete path message from the destination (paragraph [0018]).

Independent claim 23 reads as follows:

23.) A method for creating a bi-directional LSP comprising the steps of:
generating and sending an independent backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) between the device and the source (paragraphs [0011] through [0015])**; and**
receiving a backward path reservation message from the source in order to establish a backward LSP between the device and the source, wherein the separately established forward and backward LSPs form a bi-directional LSP between the device and the source (paragraphs [0019] through [0021])**.**

Independent claim 39 reads as follows:

39.) A method for creating a bi-directional LSP comprising the steps of generating and sending a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination (paragraphs [0019] through [0021])**.**

Independent claim 45 reads as follows:

45.) A network device comprising:
means for generating and sending a backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) between the device and the source (paragraphs [0011] through [0015])**; and**
means for receiving a backward path reservation message from the source in order to establish a backward LSP between the device and the source, wherein the separately established forward and backward LSPs form a bi-directional LSP between the device and the source (paragraphs [0019] through [0021])**.**

Independent claim 55 reads as follows:

55.) A network device comprising means for generating and sending a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination (paragraphs [0019] through [0021])**.**

In order to make the overview set forth above concise the disclosure that has been included, or referred to, above only represents a portion of the total disclosure set forth in the Specification that supports the independent claims.

(ii). The Remainder of the Specification Also Supports the Claims

The Appellants note that there may be additional disclosure in the Specification that also supports the independent and dependent claims. Further, by including the specification citations in parenthesis above the Appellants do not represent that this is the only evidence that supports the independent claims nor do Appellants necessarily represent that these citations alone can be used to fully interpret the claims of the present invention. Instead, the citations provide background support as an overview of the claimed subject matter.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

Appellants seek the Board's review and reversal of the rejection of claims 1-7, 9-18, 20-26, 29, 31-48, 51 and 53-56 under 35 U.S.C. 103(a) based on So and Enoki.

VII. ARGUMENTS:

Claims 1-7, 9-18, 20-26, 29, 31-48, 51 and 53-56 were rejected under 35 U.S.C. 103(a) as unpatentable over So in view of Enoki. Appellants respectfully disagree for at least the following reasons.

(i) claim 1

Appellants note that the "network device" of claim 1 is operable to "by itself generate and send a backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) between the device and a source".

As presently understood by the Appellants it appears that the Examiner has acknowledged that So does not disclose a device which itself generates a

backward path request message. To make up for this deficiency the Examiner appears to rely on Enoki.

In relying upon Enoki the Examiner takes the position that "transmit" includes "generate". Said another way, it is the Examiner's contention that because a device within Enoki transmits a backward path request message it, *ipso facto*, must also generate the message. However, as the Appellants have pointed out previously, this is incorrect. More particularly, the transmission of a label request message S26 by an LSR 3 in Enoki does not necessarily mean that the LSR3 itself generates S26.

The Appellants submit that Enoki provides for a terminal device capable of transmitting a backward path message based on "bidirectional setup" information received from LSR 1; there is no disclosure within Enoki that the "LSR 3" router is capable of independently ("by itself") generating a backward path message. For example, Enoki states:

> It is to be noted that FIG. 15 shows a sequence of the bidirectional LSP setup message in the embodiment (2). In case an external request S20 of setting up 1 Mbps LSP between the terminals "A" and "B" is made to the LSR 1, the LSR 1 transmits a label request message S21 in which the bidirectional setup and the down direction (from terminal "B" to "A") bandwidth designation of 1 Mbps are set in the vendor-private TLV to the LSR 2.
>
> The LSR 2 which has received the message S21 transmits the label request message S22 similar to the message S21 to the LSR 3.
>
> The LSR 3 performs the process for the bidirectional LSP setup based on the vendor-private TLV within the label request message S22. At this time, the LSR 3 stores the correspondence of the bidirectional LSP ID's and performs a down direction LSP setup S23 with the designated bandwidth (1 Mbps).

Enoki, paras. [0143]-[0145] (emphasis added).

Appellants contend, therefore, that one of ordinary skill in the art would understand that Enoki teaches that the down direction information is provided to LSR 3 from external (downstream) sources; it is not generated by the LSR 3.

Yet further, in more detail, in Enoki the characteristics of the "backward" or "down direction" path are defined by the "setup request" received from LSR 1 without any modification or independent action by LSR 3. Appellants further note that this understanding of Enoki is reinforced by Enoki's characterization of its invention as comprising:

> . . . a bidirectional LSP setup accepting portion for accepting an external bidirectional LSP setup request, a bidirectional LSP setup TLV preparing portion for preparing a bidirectional LSP setup TLV included in a bidirectional setup label request message transmitted in an up direction to a label switching router placed at another end of the LSP based on the bidirectonal LSP setup request, a bidirectional LSP setup TLV analyzer for analyzing the bidirectional LSP setup TLV in the message when the message is received from the label switching router at the other end, a bidirectional LSP processor for performing an LSP setup request in a down direction as opposed to the up direction based on the analyzed result by the bidirectional LSP setup TLV analyzer, and an explicit route preparing portion for preparing an explicit route on which a router to be relayed in the down direction is prescribed, based on an explicit route preparing request from the bidirectional LSP processor, based on the CRLDP, and for notifying the prepared route to the bidirectional LSP processor.

Enoki, para. [0034] (emphasis added).

Appellants contend that the cited portions of Enoki relied on by the Examiner cannot fairly be characterized as providing for the independent (i.e., "by itself" terminology) generation of a backward path message as recited in the pending claims. Indeed, with respect to backward path generation, Enoki's "LSR 3" router may be more fairly characterized as a "slave" unit that merely utilizes the routing information from the received bidirectional setup process.

In the Advisory Action the Examiner refers to paragraph [0037] of Enoki and argues that "make" means generating. However, as used in this paragraph the term "make" means transmit, not generate as the Examiner contends because the "LSP setup request" referred to in this paragraph is transmitted, not generated, in the "down direction".

In sum, the Appellants contend that the proposed combination of So and Enoki does not suggest each element of the pending claims as required for a rejection under 35 U.S.C. § 103.

(ii) claims 2, 5 and 6

With respect to claim 2, the Examiner contends that So discloses a device capable of generating and sending an "initial, forward path reservation message to [a] source in order to establish [a] forward LSP after receiving the initial forward path request message." Appellants disagree. Instead, So describes an initial request <u>from</u> a "source" to provide information for a forward path rather than path information that is sent to a source.

In response, the Examiner first states that she "does not interpret the device is [sic] only in the receiving side" (page 9 of Final Office Action and page 2 of the Advisory Action). The Appellants respectfully remind the Examiner that while claims may be interpreted broadly, any interpretation must be consistent with the specification. *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000). In sum, the Examiner's interpretation of the claims as including a source located

at both the transmission and receiving side is inconsistent with the specification.

Regarding claims 5 and 6, the Appellants respectfully incorporate the comments set forth immediately above with respect to claim 2.

(iv) claim 12

So (i.e., paragraph [0320]) does not teach or suggest a QoS indicator. In response, the Examiner takes the position that "jitter" is a parameter of QoS. Whether or not jitter may, or may not, be a parameter of QoS is immaterial. What is material is that the jitter described in So is not used as a traffic parameter that is used to generate backward path request messages.

(v) claims 15 and 16

In response to previous comments by the Examiner the Appellants pointed out that paragraphs [570] and [572] of So do not teach or suggest a network device that is "operable to send the first delete path message ...." . In response, the Examiner then referred the Appellants to paragraphs [615] of So stating that this paragraph "mentions deleting". However, the claimed inventions are directed at the deletion of path messages. In contrast, paragraph [615] of So is directed at the deletion of light paths.

In the Advisory Action the Examiner again cites paragraph [572] of So (though it appears that the Examiner is referencing the incorrect claims). This paragraph describes the removal of bi-directional LSPs. The Examiner takes the position that the described removals are the same as the sending of delete path messages to a source as in claims 15 and 16. However, there is no mention or suggestion of the claimed feature within paragraph [572]. Further, interpreting the phrase "removal" as meaning the same as the claimed sending of delete path messages is inconsistent with the specification because the specification explicitly discusses the function of sending such messages; no removal function or step is discussed at all. Nor would one skilled in the art interpret the word removal as being akin to the claimed sending function/step.

(vi) claims 17, 18 and 20-22

With respect to claims 17, 18 and 20-22, the Appellants maintain that Enoki does not disclose or suggest the independent "generation" of path reservation messages at the network device in response to a backward path request or other message from the destination as explained in detail with respect to claim 1.

(v) claims 23, 39, 45 and 55

With regard to claims 23, 39, 45 and 55 (and their dependent claims) the Appellants incorporate the discussion above with respect to claims 1, 2, 5, 6, 12, 15-18 and 20-22 and contend that the method and means claims are allowable for at least the same reasons.

Conclusion:

Appellants respectfully request that members of the Board reverse the decision of the Examiner and allow claims 1-7, 9-18, 20-26, 29, 31-48, 51 and 53-56.

The Commissioner is authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-3777 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. (PREVIOUSLY PRESENTED) A network device operable to:

by itself generate and send a backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) between the device and the source; and

receive a backward path reservation message from the source in order to establish a backward LSP between the device and the source, wherein the separately established forward and backward LSPs form a bi-directional LSP between the device and the source.

2. (ORIGINAL) The device as in claim 1 further operable to generate and send an initial, forward path reservation message to the source in order to establish the forward LSP after receiving the initial forward path request message.

3. (ORIGINAL) The device as in claim 1 further operable to generate and send a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination.

4. (PREVIOUSLY PRESENTED) The device as in claim 3 further operable to separately generate and send a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately established forward and backward LSPs between the device and the destination form a bi-directional LSP between the device and the destination.

5. (ORIGINAL) The device as in claim 1 wherein the forward and backward LSPs between the device and source comprise the same path.

6. (ORIGINAL) The device as in claim 4 wherein the forward and backward LSPs between the device and destination comprise the same path.

7. (ORIGINAL) The device as in claim 1 further operable to generate the backward path request message based on backward path parameters contained in the initial forward path request message.

8. (CANCELED).

9. (PREVIOUSLY PRESENTED) The device as in claim 7 further operable to query a local database to obtain routing information in order to generate the backward path request message.

10. (ORIGINAL) The device as in claim 7 further operable to generate the backward path request message based on a quality-of-service (QoS) indicator contained within the parameters.

11. (ORIGINAL) The device as in claim 7 further operable to generate the backward path request message based on best effort routing information when a QoS indicator is not contained within the parameters.

12. (PREVIOUSLY PRESENTED) The device as in claim 7 wherein the traffic parameters comprise a bi-directional LSP indicator and a QoS indicator.

13. (ORIGINAL) The device as in claim 1 further operable to request backward traffic parameters from the source when the initial path request message does not contain such parameters.

14. (ORIGINAL) The device as in claim 1 further operable to generate and send a first delete path message to the source and to receive a second delete path message from the source in order to delete the bi-directional LSP.

15. (ORIGINAL) The device as in claim 14 further operable to send the first delete path message to the source before receiving the second delete path message from the source.

16. (ORIGINAL) The device as in claim 14 further operable to send the first delete path message to the source after receiving the second delete path message from the source.

17. (PREVIOUSLY PRESENTED) A network device operable to generate independently and send a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination.

18. (PREVIOUSLY PRESENTED) The device as in claim 17 further operable to separately generate and send a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately established forward and backward LSPs between the device and the destination form a bi-directional LSP between the device and the destination.

19. (CANCELED).

20. (ORIGINAL) The device as in claim 17 further operable to generate and send a first delete path message to the destination and to receive a second delete path message from the destination in order to delete the bi-directional LSP.

21. (ORIGINAL) The device as in claim 20 further operable to send the first delete path message to the destination before receiving the second delete path message from the destination.

22. (ORIGINAL) The device as in claim 20 further operable to send the first delete path message to the destination after receiving the second delete path message from the destination.

23. (PREVIOUSLY PRESENTED) A method for creating a bi-directional LSP comprising the steps of:

generating and sending an independent backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) between the device and the source; and

receiving a backward path reservation message from the source in order to establish a backward LSP between the device and the source, wherein the separately established forward and backward LSPs form a bi-directional LSP between the device and the source.

24. (ORIGINAL) The method as in claim 23 further comprising the steps of generating and sending an initial, forward path reservation message to

the source in order to establish the forward LSP after receiving the initial forward path request message.

25. (PREVIOUSLY PRESENTED) The method as in claim 23 further comprising the steps of generating and sending an independent backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination.

26. (PREVIOUSLY PRESENTED) The method as in claim 25 further comprising the steps of separately generating and sending a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately established forward and backward LSPs between the device and the destination form a bi-directional LSP between the device and the destination.

27-28 (CANCELED).

29. (ORIGINAL) The method as in claim 23 further comprising the stp of generating the backward path request message based on backward path parameters contained in the initial forward path request message.

30. (CANCELED).

31. (PREVIOUSLY PRESENTED) The method as in claim 29 further comprising the step of querying a local database to obtain routing information in order to generate the backward path request.

32. (ORIGINAL) The method as in claim 29 further comprising the step of generating the backward path request message based on a quality-of-service (QoS) indicator contained within the parameters.

33. (ORIGINAL) The method as in claim 29 further comprising the step of generating the backward path request message based on best effort routing information when a QoS indicator is not contained within the parameters.

34. (PREVIOUSLY PRESENTED) The method as in claim 29 wherein the traffic parameters comprise parameters selected from the group consisting of a bi-directional LSP indicator and a QoS indicator.

35. (Previously Presented) The method as in claim 23 further comprising the step of requesting backward traffic parameters from the source.

36. (ORIGINAL) The method as in claim 23 further comprising the steps of generating and sending a first delete path message to the source and receiving a second delete path message from the source in order to delete the bi-directional LSP.

37. (ORIGINAL) The method as in claim 36 further comprising the step of sending the first delete path message to the source before receiving the second delete path message from the source.

38. (ORIGINAL) The method as in claim 36 further comprising the step of sending the first delete path message to the source after receiving the second delete path message from the source.

39. (ORIGINAL) A method for creating a bi-directional LSP comprising the steps of generating and sending a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination.

40. (PREVIOUSLY PRESENTED) The method as in claim 39 further comprising the steps of separately generating and sending a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately established forward and backward LSPs between the device and the destination form a bi-directional LSP between the device and the destination.

41. (ORIGINAL) The method as in claim 40 wherein the forward and backward LSPs between the device and destination comprise the same path.

42. (ORIGINAL) The method as in claim 39 further comprises the steps of generating and sending a first delete path message to the destination and to receive a second delete path message from the destination in order to delete the bi-directional LSP.

43. (ORIGINAL) The method as in claim 42 further comprising the step of sending the first delete path message to the destination before receiving the second delete path message from the destination.

44. (ORIGINAL) The method as in claim 42 further comprising the step of sending the first delete path message to the destination after receiving the second delete path message from the destination.

45. (PREVIOUSLY PRESENTED) A network device comprising:

means for generating and sending a backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) between the device and the source; and

means for receiving a backward path reservation message from the source in order to establish a backward LSP between the device and the source, wherein the separately established forward and backward LSPs form a bi-directional LSP between the device and the source.

46. (ORIGINAL) The device as in claim 45 further comprising means for generating and sending an initial, forward path reservation message to the source in order to establish the forward LSP after receiving the initial forward path request message.

47. (ORIGINAL) The device as in claim 45 further comprising means for generating and sending a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination.

48. (PREVIOUSLY PRESENTED) The device as in claim 47 further comprising means for separately generating and sending a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately established forward and backward LSPs between the device and the destination form a bi-directional LSP between the device and the destination.

49-50. (CANCELED).

51. (ORIGINAL) The device as in claim 45 further comprising means for generating the backward path request message based on backward path parameters contained in the initial forward path request message.

52. (CANCELED).

53. (PREVIOUSLY PRESENTED) The device as in claim 51 further comprising means for querying a local database to obtain routing information in order to generate the backward path request.

54. (ORIGINAL) The device as in claim 51 further comprising means for generating the backward path request message based on a quality-of-service (QoS) indicator contained within the parameters.

55. (ORIGINAL) A network device comprising means for generating and sending a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination.

56. (PREVIOUSLY PRESENTED) The device as in claim 55 further comprising means for separately generating and sending a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately established forward and backward LSPs between the device and the destination form a bi-directional LSP between the device and the destination.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.